

WHAT IS CLAIMED IS:

1. A winding method comprising the steps of:

forming a primary nip against a web, said primary nip defining a continuing portion of said web on an infeed side of said primary nip and a leading portion of said web on an outfeed side of said primary nip, said leading portion having a free end;

forming a secondary nip against said leading portion;

following said forming of said nips, traveling said secondary nip along said leading portion, from a first position adjoining said primary nip on said outfeed side to a second position adjoining said primary nip on said infeed side;

following said traveling, simultaneously advancing said continuing portion and said free end of said leading portion into said primary nip.

2. The method of claim 1 further comprising during said traveling, bending said leading portion into a loop.

3. The method of claim 1 further comprising holding said web stopped during said traveling.

4. The method of claim 1 wherein said forming of said secondary nip follows said forming of said primary nip.

5. The method of claim 1 further comprising the steps of:

winding said continuing portion in a plurality of turns over said leading portion, following said advancing; and
during said winding, eliminating said secondary nip.

6. The method of claim 1 wherein said traveling further comprises rotating said secondary nip about a winding axis parallel to the longest dimensions of said primary and secondary nips.

7. The method of claim 6 wherein said rotating is through an angle of greater than 180 degrees.

8. The method of claim 6 wherein said rotating is through an angle of 270 degrees.

9. The method of claim 1 wherein said forming of said primary nip further comprises pinching said web.

10. A web winding method comprising the steps of:

pinching a stopped web at a primary nip between a builder roller and a winding core, said primary nip defining a continuing portion of said web on an infeed side of said primary nip and a leading portion of said web on an outfeed side of said primary nip;

during said pinching, forming a secondary nip between said winding core and a cinch roller;

during said pinching, traveling said secondary nip in an incomplete orbit around said winding core to roll said leading portion around said winding core;

winding said continuing portion in a plurality of turns over said leading portion, following said traveling; and

during said winding, eliminating said secondary nip.

11. The method of claim 10 further comprising the steps of:

holding said web stopped, during said traveling; and

following said traveling and prior to said winding, simultaneously advancing said continuing portion and a free end of said leading portion into said primary nip.

12. The method of claim 10 wherein said web has a pair of opposed longitudinal edges and said traveling further comprises contacting only said edges with said cinch roller.

13. The method of claim 10 further comprising the steps of:
advancing a predetermined length of a leading portion of said web out of a web supply;
draping said leading portion over said builder roller;
following said draping, translating said builder roller into the proximity of said winding core.

14. An apparatus for winding a web, said apparatus comprising:
a winding spindle rotatable about a winding axis;
a builder roller rotatable about a builder roller axis parallel to said winding axis, said builder roller defining an infeed arc and an outfeed arc;
an axle defining a guide axis, said axle being pivotable between a first orientation wherein said guide axis parallels said winding axis and a second orientation wherein said guide axis is transverse to said winding axis, said axle being movable in said first orientation, in an incomplete orbit about said winding spindle from a start position in said infeed arc to a rotated position in said outfeed arc, said axle being adjacent said builder roller in said initial and rotated positions, said axle being returnable from said rotated position to said start position, in said second orientation; and
a cinch roller rotatable about said guide axis.

15. The apparatus of claim 14 further comprising a cinch roller gimbaled to said axle.

16. The apparatus of claim 14 wherein said cinch roller has a pair of opposed flanges and said cinch roller is gimbaled to said axle midway between said flanges.

17. The apparatus of claim 14 wherein said builder roller is translatable toward and away from said winding axis between a standby position and a forward position.

18. The apparatus of claim 17 further comprising a biaser biasing said builder roller toward said winding axis when said builder roller is in said forward position.

19. The apparatus of claim 14 further comprising a rotary drive operatively connected to said winding spindle and wherein said builder roller is freely rotatable.

20. An apparatus for winding a web, said apparatus comprising:
a winding spindle rotatable about a winding axis;
a core mounted on and rotatable with said winding spindle;
a builder roller located in a forward position relative to said core, said builder roller being rotatable about a builder roller axis parallel to said winding axis, said core and said builder roller defining a primary nip having an infeed side and an outfeed side;
a axle rotatable about a guide axis, said axle being pivotable between a first orientation paralleling said winding axis and a second orientation transverse to said winding axis, said axle being movable in said first orientation, in an incomplete orbit about said winding core from a start position adjoining said builder roller on said infeed side, through a plurality of intermediate positions, to a rotated position adjoining said builder roller on said outfeed side, said axle being returnable from said rotated position to said start position, in said secondary orientation; and
a cinch roller rotatable about said guide axis, said cinch roller and said builder roller defining a secondary nip when said axle is in said start, intermediate, and finish positions.

21. The apparatus of claim 20 wherein said cinch roller is gimballed to said axle.

22. The apparatus of claim 20 wherein said cinch roller has a pair of opposed flanges and said cinch roller is gimballed to said axle midway between said flanges.

23. The apparatus of claim 20 wherein said builder roller is translatable toward and away from said winding axis between a standby position and said forward position.